

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method of forming a gate in a non-volatile memory device comprising:

forming a tunnel dielectric layer on a semiconductor substrate;
forming a floating gate layer on the tunnel dielectric layer;
forming an intergate dielectric layer on the floating gate layer;
forming a control gate layer comprising an in-situ doped amorphous silicon layer on the intergate dielectric layer;
thereafter, crystallizing the amorphous silicon layer by annealing the control gate layer; and
 patterning the control gate layer, the intergate dielectric layer and the floating gate layer.

2. (Original) The method as claimed in claim 1, wherein forming a floating gate layer comprises forming polysilicon.

3. (Original) The method as claimed in claim 2, wherein forming a floating gate layer comprises forming amorphous silicon.

4. (Original) The method as claimed in claim 1, wherein the intergate dielectric layer comprises an oxide/nitride/oxide (ONO) film.

5. (Original) The method as claimed in claim 1, wherein the control gate layer comprises polysilicon.

6. (Original) The method as claimed in claim 1, wherein the control gate layer comprises amorphous silicon.

7. (Original) The method as claimed in claim 1, wherein annealing the control gate layer comprises furnace annealing.

8. (Original) The method as claimed in claim 7, wherein the furnace annealing is performed at a temperature of about 600~950°C.

9. (Original) The method as claimed in claim 1, wherein annealing the control gate layer comprises rapid thermal annealing (RTA).

10. (Original) The method as claimed in claim 9, wherein the RTA is performed at a temperature of about 800~1,000°C.

11. (Currently amended) A method of forming a gate in a non-volatile memory device, the method comprising:

forming a tunnel dielectric layer on a semiconductor substrate;
forming a first silicon layer as a floating gate layer on the tunnel dielectric layer;
forming an oxide-nitride-oxide (ONO) intergate dielectric layer on the first silicon layer;
forming a second silicon layer as a control gate layer on the ONO layer;
forming a metal silicide layer on the second silicon layer;
furnace annealing the resultant structure; and
 patterning the metal silicide layer, the second silicon layer, the ONO layer and the first silicon layer.

12. (Original) The method as claimed in claim 11, wherein forming a first silicon layer comprises forming polysilicon.

13. (Original) The method as claimed in claim 11, wherein forming a first silicon layer comprises forming amorphous silicon.

14. (Original) The method as claimed in claim 11, wherein forming a second silicon layer comprises forming polysilicon.

15. (Original) The method as claimed in claim 11, wherein forming a second silicon layer comprises forming amorphous silicon.

16. (Cancelled)

17. (Currently amended) The method as claimed in claim [[16]]11, wherein the furnace annealing is performed at a temperature of about 600~950°C.

18. (Cancelled)

19. (Cancelled)

[[21]]20. (Currently amended) A method of forming a gate in a non-volatile memory device, the method comprising:

forming a tunnel dielectric layer on a semiconductor substrate;
forming a first silicon layer on the tunnel dielectric layer;
forming an oxide-nitride-oxide (ONO) intergate dielectric layer on the first silicon layer;
forming a second silicon layer as a control gate layer on the ONO layer;
forming a metal silicide layer on the second silicon layer;
~~annealing the resultant structure to reduce~~ reducing a thickness variation of the ONO layer and ~~to reduce~~ a bird's beak phenomenon at the interface between the ONO layer and the second silicon layer by annealing the resultant structure; and
sequentially patterning the metal silicide layer, the second silicon layer, the ONO layer and the first silicon layer.

[[22]]21. (Currently amended) The method of claim 20, wherein the annealing is performed in an ambient including an inert gas.

[[23]]22. (Currently amended) The method of claim 20, wherein forming a metal silicide layer comprises using dichlorosilane gas to form a tungsten silicide layer.

[[24]]23. (Currently amended) The method of claim 22, wherein the annealing is performed after forming the tungsten silicide layer.